

PIPER PA 28 WARRIOR

ROTW
French Developers Team
et / and
Simvol Fly!



présentent / present

Manuel de vol pour **Piper PA 28** **Flight manual**

pour / for
Fly!, Fly! 2k, Fly! II

PA28 Warrior for Fly !

Introduction

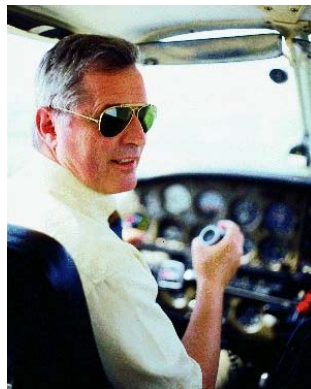
Fly ! is one of the first simulators to offer a complete panel, a realistic cockpit and the possibility to start a plane as in reality.

Of course, like in all major flight simulators, a key (in this case the “E” key) allows you to bypass this stage and start your flight with the engine(s) on and only the radios to tune.. That is a pity for the starting up of the engines is a very interesting stage of the pre-flight check-list. The strictness of the procedures will allow one to be sure of the airworthiness of the plane.

The more sophisticated the plane (multi-engined, turbo-props, jets) the longer and complex this step will be. Even if the PA28 is only a single-engined piston driven aircraft, the check-list must be carefully followed. Skipping a part or trusting only one’s memory or habits are the cause of major accidents.

This manual, only meant for flight simulators, will allow the PA28 user to become familiar with the real-world procedures of starting the plane.

René Birot
Simvol/Fly Webmaster
ROTW coordinator



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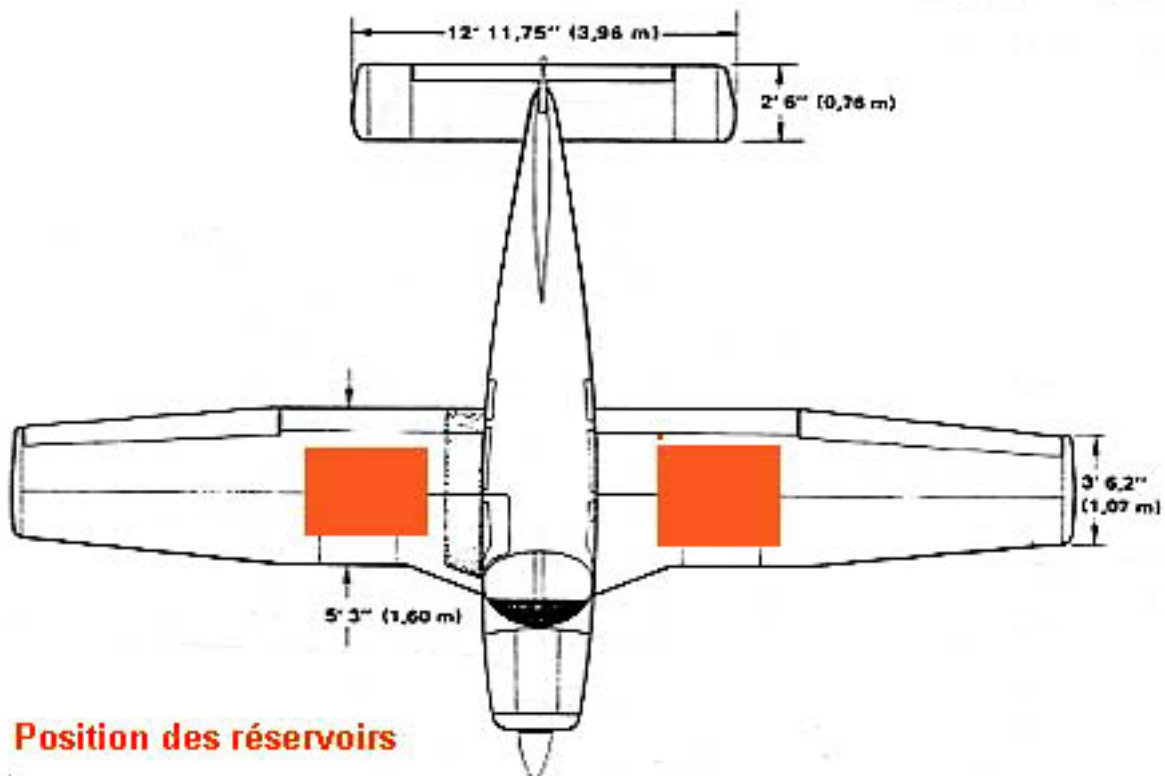
4- Credits

Comments :

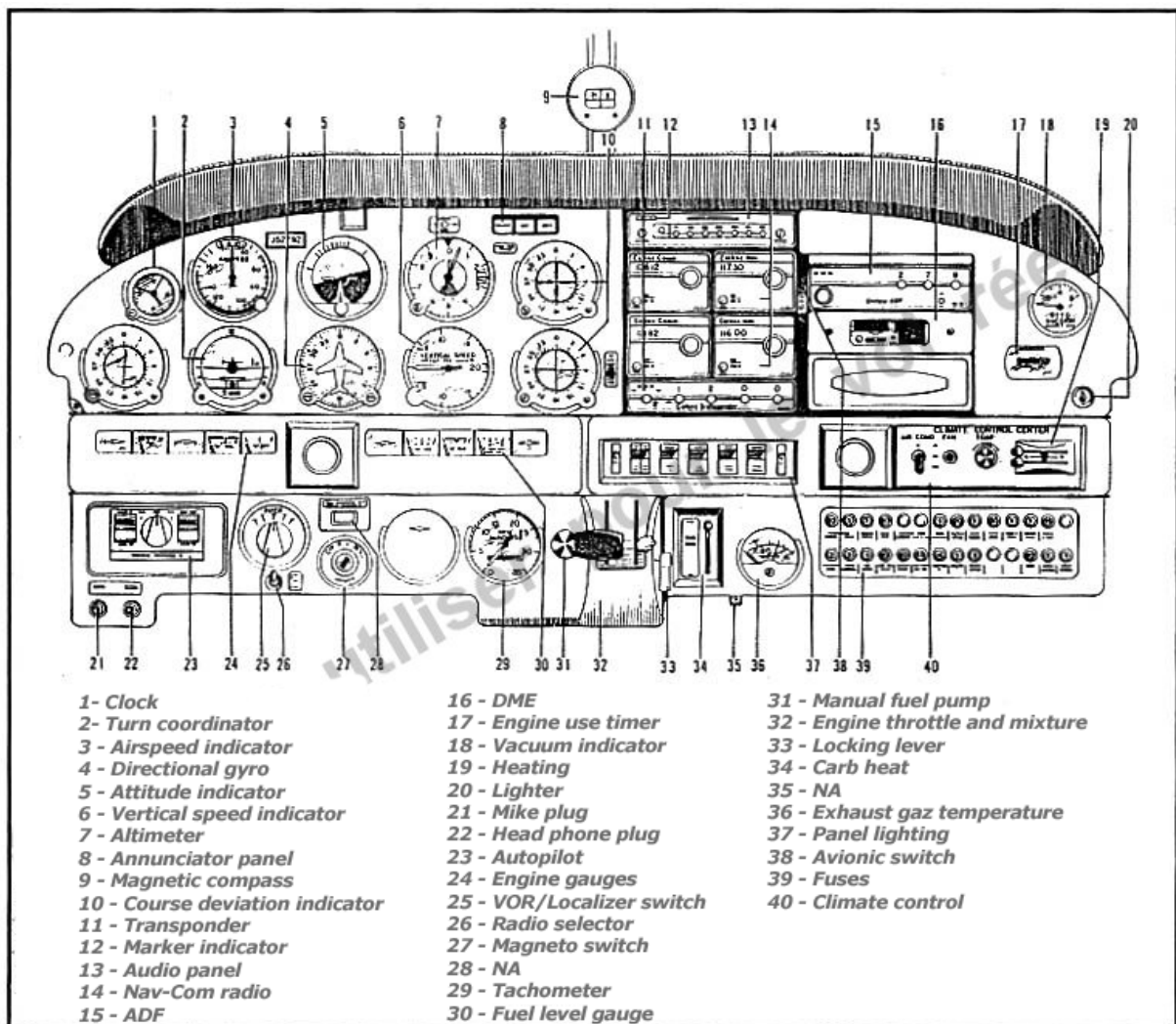
- a. All the screenshots were all taken in Fly! (1) or Fly!2
- b. The procedures described in this manual are all from the real Warrior check-list
- c. The only unrealistic features are
 - The position of the trim, which is normally situated behind the flaps-lever
 - a more “modern” radio-stack compared to the one to be found on the real plane (even if similar planes are equipped this way).
 - Due to TRI bugs, you can't move buttons of Airspeed indicator and directionnal gyro

1- Guided tour of the PA28 for FLY !

1-1 External view



1-2 The panel



1.3 Flight preparation screens

Choosing the plane...



in Fly ! 1



in Fly ! 2

Specifications



available for Fly ! 1 only

Performance may vary according to the plane's equipment, the state of the engine and the plane, the weather and the flying technique.

	Vi	
	Kt	km/h
a) Speed for an optimal rate of climb	79	146
b) Speed for an optimal climb slope	63	117
c) Maximum speed in rough weather	111	206
d) Maximum speed with flaps down	103	191
e) Final approach speed (40° flaps)	63	117
f) Maximum cross-wind on landing	17	31

Performance (flight manual)

Fuel management



in Fly ! 1



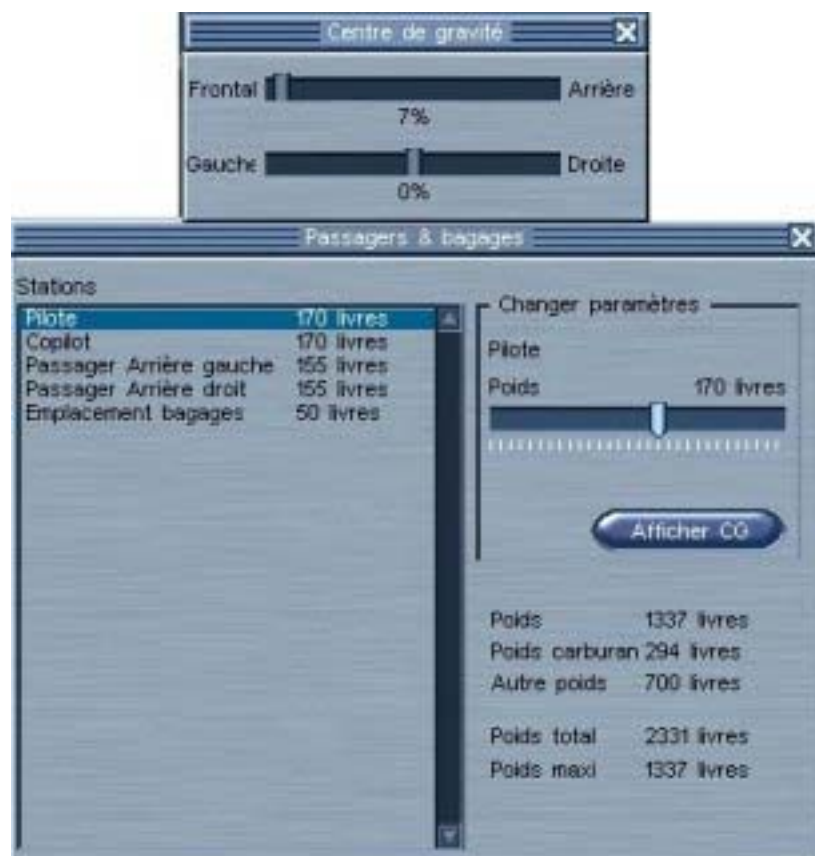
in Fly ! 2

PA28 Warrior for Fly !

Load and center of gravity

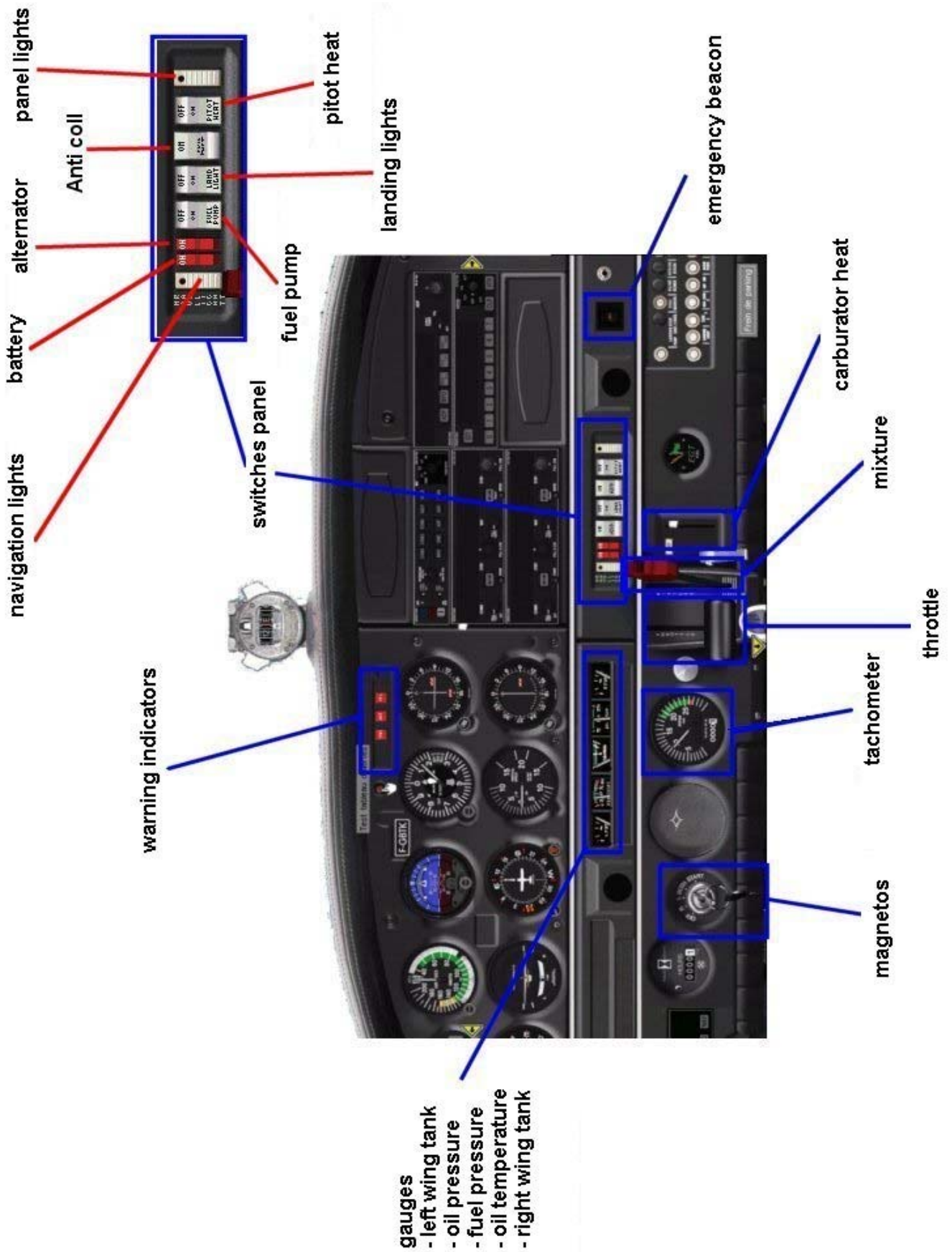


in Fly ! 1

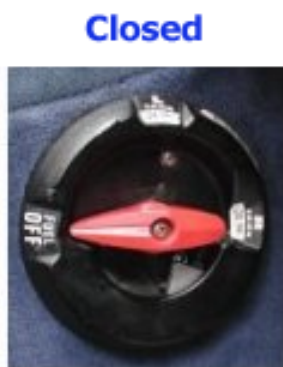
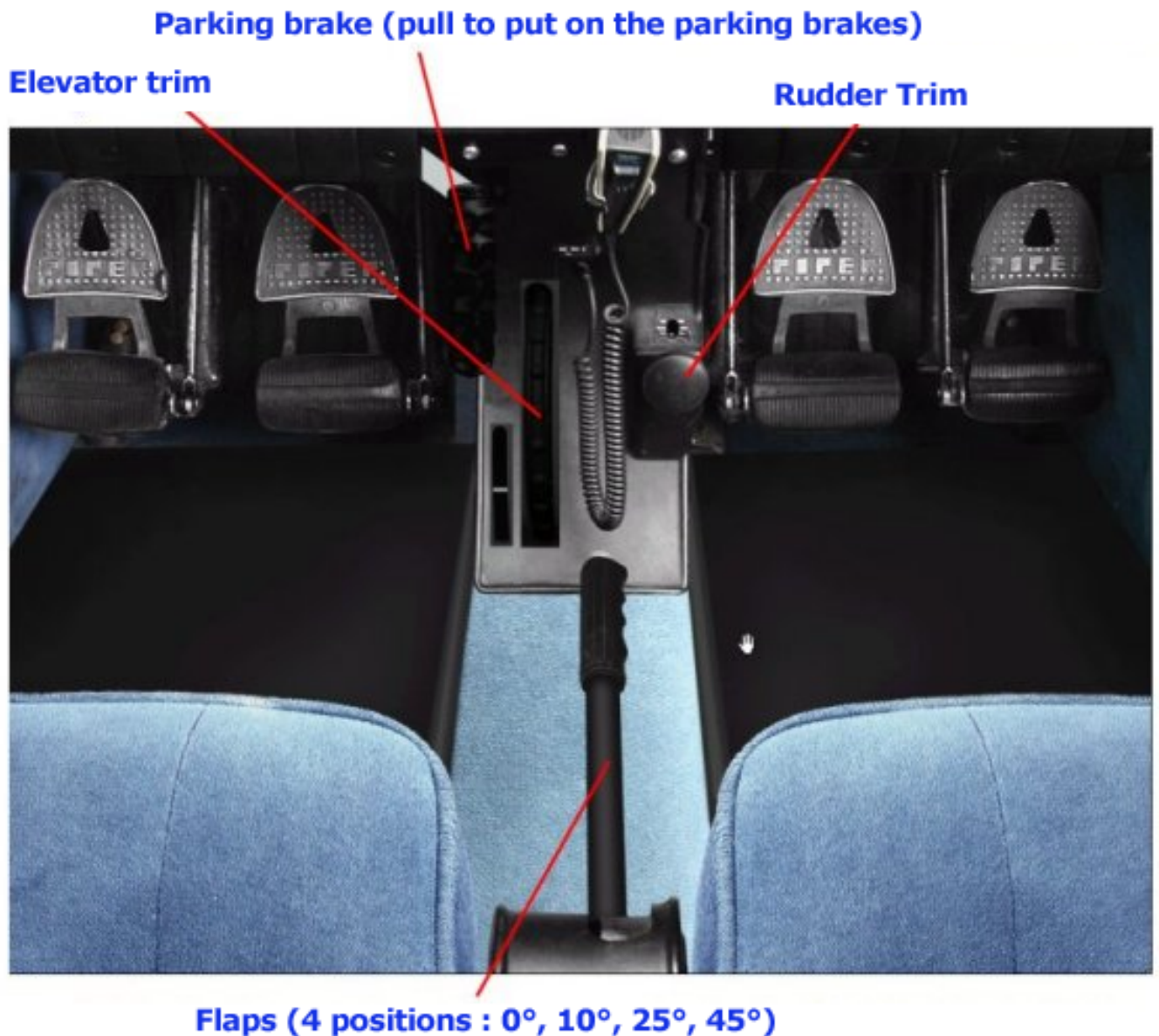


in Fly ! 2

1-5 Description of the panel



1.6 lower part of the cockpit



**Fuel tank selector
(bottom left hand side of the cockpit)**

2- Starting the engine

2-1 External pre-flight check.

Preflight Inspection	
Cockpit	
Parking Brake	Set
Hobbs/Tach	Check
Battery	On
Fuel Quantity	Check
Lights/Stall Warning	Check
Electrical Equipment	Off
Battery	Off
Flaps	Check/Up
Trim	Check
Pitot/Static Drains	Drain/Close
Acft Documents	On Board
Right Wing	
Flap Hinges	Check
Aileron	Check Hinges
Wingtip/Lights	Check
Leading Edge	Clean
Fuel Quantity	Check
Fuel Vent	Clear
Fuel Strainer	Sample
Landing Gear/Tire	Check
Air Inlet	Clear
Nose	
Engine Condition	Check
Oil Quantity	Check
Propeller & Spinner	Check
Alternator Belt	Check
Air Inlets	Clear
Landing Light	Check
Nose Gear & Tire	Check
Engine Condition (L)	Check
Fuel Strainer	Sample
Left Wing	
Same as Right Wing (in reverse). Also: check pitot / static mast and stall warning horn	
Fuselage and Empenage	
Antennas	Check
Air Inlet	Check
Stabilator & Trim	Check
Rudder	Check

2-2 Procedure before starting the engine



Procedure before starting the engine	
Documents	On board
HobbsTach	record
Seat	adjusted
Seat belts	fastened
Parking brake	set
Flaps (F key only)	up
Flight controls	free
Trim	Tested - Neutral
Throttle	reduced
Magnetos	cut, key on OFF
Radio	on OFF
Breakers	checked
Carb heat	OFF
Battery (left red)	ON
fuel	Fullest tank selected
Battery (right red)	OFF
Mixture (red lever)	
Vomit bags	On board



2-3 Starting up



Battery (lef red)		ON
Anti collision lights		ON
Fuel pump		ON
Fuel pump pressure		Checked, normal
Engine	WARM	No injections
Engine	COLD	4 to 8 throttle inject.
Engine	very COLD	same for injection pump
Throttle		1/2 cm
Security		Clear around the plane
Brakes		Ready to brake
Rotate key to start		10 seconds
RPM		1000
Oil pressure		GREEN
Alternator (right red)		ON (light off)
Load meter		check
Fuel pump		OFF
Fuel pressure		Checked, normal
Magnetos (800 tr/mn)		Try to cut
VHF		ON, tuned to ATIS
VOR		ON, tuned
ADF		ON, tuned
Altimeter		tuned
Directional gyro		tuned
Transponder		ON then STBY

Flooded engine start

Throttle	Full forward
Mixture	Cut-off
When engine starts	Invert levers
RMP	1000
Resume normal procedure	

Avionic off : upper switches



Start up procedure

Battery (lef red)	ON
Anti collision lights	ON
Fuel pump	ON
Fuel pump pressure	Checked, normal
Engine WARM	No injections
Engine COLD	4 to 8 throttle inject.
Engine very COLD	same for injection pump
Throttle	1/2 cm
Security	Clear around the plane
Brakes	Ready to brake
Rotate key to start	10 seconds
RPM	1000
Oil pressure	In GREEN zone
Alternator (right red)	ON (light off)
Load meter	check
Fuel pump	OFF
Fuel pressure	Checked, normal
Magnetos (800 tr/mn)	Try to cut
VHF	ON, tuned to ATIS
VOR	ON, tuned
ADF	ON, tuned
Altimeter	tuned
Directional gyro	tuned
Transponder	ON then STBY

Avionic on : lower



Flooded engine start

Throttle	Full forward
Mixture	Cut-off
When engine starts	Invert levers
RMP	1000
Resume normal procedure	

As in the real aircraft, there is no Master Avionics switch and you have to switch on each device separately.

3- Check-lists

Preflight Inspection		PA-28-161 CHECKLIST		Engine Failure		Engine Fire During Start		Electrical Failure		Spin Recovery	
Cockpit	Set	Engage	1000 RPM	Altitude Sufficient For Restart?	Yes	Establish	Transmit	Load Meter	Verify Inop	Throttle	Idle
Parking Brake	Check	1000 RPM	Check	No	Landing Site	Select	Cut-Off	Load Meter	Verify Inop	Ailerons	Neutral
Hobbs/Tach	On	Annunciators	Out	Establish	Electric Fuel Pump	On	Engage	If load meter indicates zero	Alternator	Rudder	Opposite dir of rotation
Battery	Check	Electric Fuel Pump	Off	Mixture	Cut-Off	On	Open	Alternator	Off	Control Wheel	Full Forward
Lights/Strall Warning	Check	Throttle	On	Battery/Alternator	Off	Carb Heat	Stop	Reduce electrical load to min	Check	Rudder and Control Wheel	Neutral when rotation stops.
Electrical Equipment	Off	Mixture	Set	Magnetos	Off	Throttle	Cut-Off	Alternator	Off	Neutral when rotation stops.	Level
Battery	Off	Landing Light	In	Fuel Selector	Off	Primer	Off	Alternator	Off	Pitch	
Flaps	Check/Up	Min Safe Altitude	Verify	Loss of Fuel Pressure	On	Magnetos	Check	Alternator	Off	Yes	
Pilot/Static Drains	Check	Area	Clear	Electric Fuel Pump	On	Mayday	Transmit	Alternator	Off	No	
Act Documents	On Board	Rich	Clear	Fuel Selector	Opposite Tank	Mixture	Cut-Off	Alternator	Off	Engine Restarted?	
Right Wing	Check	Pre-Maneuver Check		Throttle	Full Forward	Battery/Alternator	Off	Alternator	Off	Leave fuel selector on present tank. Land as soon as possible.	
Flap Hinges	Check	Mixture	Verify	Battery/Alternator	On	Magnetos	Off	Alternator	Off	Loss of Oil Pressure / High Oil Temperature	
Aileron	Check	Min Safe Altitude	Verify	Electric Fuel Pump	On	Fuel Selector	Off	Alternator	Off	Land as soon as practical. Prepare for imminent engine failure.	
Wingtip/Lights	Check	Area	Clear	Fuel Selector	Opposite Tank	Throttle	Engage	Alternator	Off	Electrical Failure	
Leading Edge	Clean	Post-Maneuver Check		Throttle	Full Forward	Mixture	Engage	Alternator	Off	Load Meter	
Fuel Quantity	Check	Mixture	Verify	Electric Fuel Pump	On	Start	Engage	Alternator	Off	If load meter indicates zero	
Fuel Vent	Clear	Engine Instruments	Check	Mixture	On	Mixture	Engage	Alternator	Off	Alternator	
Fuel Strainer	Sample	Fuel Selector	Fulllest Tank	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Landing Gear/Tire	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Air Inlet	Clear	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Nose	Check	Area	Clear	Battery/Alternator	On	Throttle	Engage	Alternator	Off	Alternator	
Engine Condition	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Oil Quantity	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Propeller & Spinner	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Alternator Belt	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Air Inlets	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Landing Light	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Nose Gear & Tire	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Engine Condition (L)	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Fuel Strainer	Sample	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Left Wing	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Same as Right Wing (in reverse). Also: check pilot / static mast and stall warning horn	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Fuselage and Empennage	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Antennas	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Air Inlet	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Stabilator & Trim	Check	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Rudder	Check	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Before Start	Fastened	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Seat Belts	On	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Battery	On	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Alternator	On	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Anti-Collision Lights	On	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Nav Lights	On	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Fuel Selector	Lowest Tank	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Engine Start	Establish	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Pilot In Command	Set	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Parking Brake	On	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Electric Fuel Pump	Full Rich	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Mixture	1/4" Open	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Throttle	As Required	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	
Prime	Clear!	Area	Clear	Throttle	Full Forward	Throttle	Engage	Alternator	Off	Alternator	
Prop Area	...	Area	Clear	Electric Fuel Pump	On	Throttle	Engage	Alternator	Off	Alternator	

This checklist was developed with a 1978 Piper PA-28-161 Warrior II in mind. Use at your own risk. Please DO NOT alter or obscure Dauntless Software identification from this document.

Please monitor our website <http://www.dauntless-soft.com> for modifications and updates to this checklist as well as for other aviation stuff.

V-Speeds (in KIAS)		Securing the Aircraft	
Vr	40-50	Va	88-111
Vx	63	Vfe	103
Vy	79	Vno	126
Climb	87	Vne	160
Vs	50	Glide	73
Vso	44	Max dem	XW 17

4- Credits

1- The PA - 28 Warrior II 161 is a plane built in the United States of America by :

« Piper Aircraft Corporation »

The real plane which was used for the model is the « F-GBTK » of the ACRIV (AéroClub Rennes Ille et Vilaine) based on the airport of Rennes St Jacques (LFRN) in Brittany, France.

2- Development for Fly ! 1 et 2 : « Rest Of The World » (ROTW)

a. Digital pictures of the real plane	René Birot et TJ
b. External model (3D)	Jean Sabatier
c. Internal views	TJ
d. Panel	TJ
e. Flight model	Laurent Claudet
f. Gauge programming	Laurent Claudet
g. EPD creation	Laurent Claudet
h. Flight preparation screens	René Birot
i. Flight model testing	René Birot
j. Conception of the flight manual	René Birot
k. Translation in english	Jean-Paul Mes
l. First page designer	Jean-Paul Mes

The entire SIMVOL team took part in the beta –testing of the plane

We would like to thank Adrian Cybriwsky of dauntless-soft.com for allowing us to use their checklist for the PA 28.

PA28 Warrior for Fly !

